

US EPA ARCHIVE DOCUMENT

**U.S. Environmental Protection Agency
Region 5**

Determination of No Further Action

**The Ohio Department of Natural Resources (ODNR)
Hocking Hills State Forest Wood Treatment Facility
19275 State Road 374
Rockbridge, OH 43149
OHD 980 996 128**

Introduction

This document for the Ohio Department of Natural Resources (ODNR) Hocking Hills State Forest Wood Treatment Facility, 19275 State Road 374, Rockbridge, OH 43149 and hereinafter referred to as “ODNR Hocking” explains the basis for the United States Environmental Protection Agency’s (EPA’s) determination that no further action is required for this Facility.

This document summarizes information that can be found in greater detail in the site file for this facility, including these specific files from the EPA Region 5 Records Center:

- A.4.1-A.4.2 Closure Correspondence/Plans
- A.4.3 Closure Certification Documents ('94) (1 of 2)
- A.4.3 Closure Certification Documents ('94) (2 of 2)
- A.4.4 Sampling and Analysis/Site Closure ('87-88)
- D.1.4 Preliminary Assessment/VSI
- D.2.7 Sampling Investigations

Determination

Based upon the information in the site file EPA has made a determination that no further action by the federal RCRA corrective action program is required at the ODNR Hocking Hills State Forest Wood Treatment Facility at this time.

Within this Determination, the name ODNR Hocking when used alone means the ODNR Hocking Hills State Forest Wood Treatment Facility.

Facility Background

Management and Waste Generation History

Management

The ODNR Hocking Facility was built in 1958, and operated until 1984. The facility occupied about 10 acres on a ridge in Hocking Hills State Park, which was a sub-portion of the Hocking Hills State Forest. The facility was used to treat wood fence posts, utility posts, telephone poles and other objects with a pentachlorophenol (PCP) and diesel fuel mixture. During normal facility operations, employees of ODNR would periodically drain the contents of dip process tanks through a clay tile pipe that discharged onto land which had a declining pitch sloping in a western direction.

By order of the OEPA in October 1984, ODNR ceased operations at ODNR Hocking. ODNR Hocking did not submit a Notification of Hazardous waste activity until 1984. OEPA issued a Complaint and Compliance Order (CACO) because they failed to meet the RCRA requirement to submit such notification of these activities at their facility. ODNR Hocking subsequently submitted a Part A Permit application for a Treatment, Storage and Disposal Facility (TSDF) in 1986. To properly close the previous operations pursuant to RCRA requirements at the ODNR Hocking site, a closure plan was submitted in March, 1990 that included a sampling and analysis plan suitable for determining the nature and extent of contamination of soil and/or groundwater contamination as well as the proper method for removal and disposal of all hazardous wastes found on site including contaminated soils. The facility RCRA Clean-Closure of all units was approved by OEPA on July 12, 1

Waste Generation History

The November 1992 preliminary assessment/visual site inspection (PA/VSI) was conducted by PRC Environmental Management Inc. PRC identified two (2) solid waste management units (SWMUs), and two (2) areas of concern (AOCs) at the Ohio Department of Natural Resources (ODNR) Hocking State Forest Wood Treatment Facility. These SMWUs are shown in Figure 1 at the end of this document. (Layout of the Hocking Hills Wood Treatment site.)

The Solid Waste Management Units (SWMUs) identified were:

- SWMU 1 - the wood treatment shed
- SWMU 2 - the wood treatment drainage area.

The Areas of Concern (AOCs) where releases may have occurred were defined as:

- AOC 1 - treated wood drying area
- AOC 2 - diesel fuel underground storage tank.

At SWMU 1, wood products were submerged into a treatment tank of this PCP/diesel mixture and taken out and allowed to drip dry onto a clay tile drain system which was also employed to

periodically drain the contents of the dip tank. Two open-top steel platform tanks containing the PCP/diesel mix were inside this building without secondary containment. After the facility was closed in 1984, the dip tank contents were drummed. Stained soils were noted during OEPA inspections in 1986 and 1987. The groundwater used for drinking water purposes is in the sub-bedrock aquifer. It was determined to be unlikely that a release from this SWMU would migrate through several layers of bedrock to the drinking water source. To prevent exposures to humans or ecological species, the area soils contaminated with PCP were recommended to be removed.

At SWMU 2, the contaminants from SWMU 1 drained into a clay tile system which then discharged to a pipe, and then onto a downhill grade in a westerly direction from the treatment building. This practice caused a release from SWMU 2 to soils on the downhill grade. It was evident just by visual inspection that releases took place since local vegetation was stressed and soils were stained with the treatment mix. This disposal method was discontinued when OEPA began to conduct routine compliance inspections. This facility had several compliance issues with OEPA regarding their operations.

At AOC 1, treated wood was allowed to lay in the sun to dry on an unlined earthen area. There was no visible vegetation in this area at the time of the PA/VSI, possibly due to exposure of soils there to the wood treatment chemicals.

At AOC 2, there was a 3000 gallon underground storage tank (UST) which contained a mix of diesel fuel and pentachlorophenol (PCP) used as a mixture for wood treatment. This UST was located adjacent to the treatment building (SWMU 1) on the north side.

Hydrogeological Setting

Hocking County lies on the western portion of the Allegheny Plateau, a large regional uplift covering most of the eastern part of the United States. Bedrock in the area is Mississippian Age sandstone and shales of the Logan Formation. Depth to bedrock in the area is about 10 feet below ground surface. The Glaciers of the Pleistocene era affected only the extreme western edge of Hocking County. However, erosional effects from the melt waters of the glaciers created the topography that exists today.

Soils near the facility belong to the Wellston Association. Typically, Wellston Soil is well drained and is located on ridge tops. Permeability is moderate and runoff is medium in these soils. (USDA, 1989)

Bedrock in the Region consists of interbedded layers of shale, sandstone and coal deposits. Soil lithology at ODNH Hocking is composed of yellow clay from the surface to 6 to 19 feet bgs, followed by various forms of bedrock consisting of sandstone to 37 feet bgs, then blue shale to 45 feet followed by coal blossom to 55 feet followed by gray shale and gray rock to 88 feet, followed by interbedded layers of shale, siltstone, sandstone and coal deposits to 385 ft.

Ecological Setting

The climate in Hocking County is characterized by warm humid summers and cold snowy winters. The average yearly temperature is 52 degrees Fahrenheit. The average yearly rainfall is 33 inches. The prevailing wind direction is from the northwest to the southeast. The average wind speed is about 8 miles per hour.

The nearest surface water body is a creek which is about 0.5 miles north of the facility. This creek is a tributary to Salt Creek further west of the facility. Sub-bedrock groundwater in a confined aquifer not associated with this site was used as a drinking water source in the area, the closest of which is a pump providing drinking water in a picnic area about 0.4 mi north of the facility.

The facility is located within Hocking Hills State Park, which is an eco-sensitive area with a diversity of plant and animal life in the area. Field investigations conducted by ODNR and the Ohio Department of Transportation (ODOT) prior to construction of roads found that there are several terrestrial habitat types, typical of southeastern Ohio.

Plant life at ODNR Hocking consists of mature stands of Hemlock Forests, with high quality hemlock dispersed throughout the park with several meadow areas. There are also mixed coniferous areas of beech and oak trees, and various berry producing trees. Mixed deciduous areas are present in lesser amounts, but the most notable plants are the oak and hickory, ground pine, American Chestnut saplings.

The forested area serves as a habitat for hundreds of species of birds, mammals, rodents and snakes. Endangered species found in the area include the Timber Rattlesnake, the small whorled pogonia, the American Burying Beetle, and the Indiana Bat.

Site Investigations

In March 1990, the ODNR Hocking Facility submitted and the OEPA approved a closure plan for the facility, which included sampling and analysis to determine the extent of contamination to soils and groundwater. Closure related field activities took place from January through November of 1993. These activities were conducted by Roy F. Weston Inc. on behalf of ODNR.

The diesel fuel UST (AOC-2) along with several feet of surrounding soils was excavated and removed. The entire drip dry area (AOC-1) underwent several excavations to remove site contaminants as well. After each round of excavation, testing of the remaining soil was performed to compare contaminant levels to human health risk standards.

Site soils in the clay tile tank emptying area, as well as soils along the flow line from the treatment tank (and up to 10 feet on either side) went through as many as five excavations followed by confirmatory sampling to ensure that human health risk exposure levels were not exceeded. Each round of excavated soil was analyzed, a waste determination was made, and the soil was subsequently disposed as a hazardous or non-hazardous waste, as the situation applied.

Soils at the bottom of the flow line of the released treatment mix (a flat area at the bottom of the hill) were excavated and analyzed multiple times until sub soil rock was encountered. When nothing was left in this area but the rock, the rock itself was also sampled for contamination. Contaminated rock was excavated until sampling showed no additional removal was required and no remaining contamination was found.

A groundwater well was advanced at the bottom point portion of the hill where the treatment mix collected, and the well was developed, sampled and analyzed for Appendix 9 contaminants. The resulting analysis rendered non-detects for any contaminants, including PCP and total petroleum hydrocarbons (TPH).

OEPA staff reviewed the findings of all the cleanup operations conducted at the facility, and in a letter dated July 12, 1994 from Thomas Crepeau, OEPA to John Dorka of ODNR, the OEPA had determined that the ODNR Hocking Wood Treatment Facility was clean closed, and that the facility would no longer operate in that capacity.

In an OEPA interoffice communication dated November 1, 1994 from Dave Chenault to Scott Schmerhorn, the memo cited that the closure plan for the ODNR Hocking Facility had been completed, and was certified by OEPA to be completed, that a post closure inspection had been performed, and that since this closure was a clean closure, OEPA has ended its involvement in the site.

Scope of Corrective Action

In 1990-1994 (the time during which the site investigation and closure activities took place), the site contaminants were PCP and TPH (diesel fuel, and fuel oil from the fuel oil storage UST). The State of Ohio cleanup levels at the time of closure were 1.6 ppm for PCP and 105 ppm for TPH. The treatment area (SMWUs 1 and 2) for wood posts and poles is shown as a rectangular area in the diagram of the facility in Attachment 1.

EPA has performed a review of the State of Ohio / OEPA cleanup levels from the standpoint of providing health protection for visitors to Hocking Hills State Forest who may potentially have contact with residual surface soils in the area around the excavation of AOC-2. For PCP, OEPA's cleanup level was designed to achieve a residual soil concentration level not exceeding an average of 1.6 ppm. EPA's current lowest (most health protective) risk screening levels for PCP in soil are 2.7 ppm for protection from cancer risk, and 1,900 ppm for protection from non-cancer health effects. Therefore, EPA concludes that OEPA applied a very stringent and health protective risk goal for PCP. For TPH, EPA determined that the level of 105 ppm in soil is OEPA's lowest action level goal, called a Petroleum Action Level. According to Ohio Department of Health's formulas for deriving a TPH (Gasoline/Diesel) Action Level, the Level is designed to provide health protection from exposure to four of the most potentially toxic constituents in TPH, which are commonly referred to as benzene, toluene, ethylbenzene, and total xylenes (BTEX). Those BTEX concentration levels are all well below the EPA risk-based screening levels for BTEX in soil to provide protection from cancer risk and non-cancer health effects. Therefore, EPA concludes that OEPA applied a very health protective risk goal for TPH.

Figure 1 (appended at the end of this document) is a diagram of the Hocking site divided into distinct areas where various amounts of soil were removed to meet state human health protective goals.

Area A in the diagram represents the wood treatment tank and Area A1 represents a sampling point from the soils located directly below the treatment tank. Areas A2 and A3 are sampling points under the clay tiles buried 4 inches underground which conveyed dripping treatment mix away from the wood treatment shed (SMWU 1). All areas within the wood treatment shed (including Areas A1, A2 and A3, as well as Areas B, C and D) are within the wood treatment shed and considered to be SWMU 1.

Areas A4 through A10 represent successive sampling points on a line heading westward from Area A in the diagram where the excess treatment mix flowed out of the clay tiles downgradient on surface soils. This area represents SWMU2, the drainage area.

Area B is an area within the treatment shed adjacent to the treatment tank and affected by tank wastes. B1 represents a soil sampling location within Area B.

Area C is an area within the treatment shed and containing the treatment tank, and affected by tank wastes.

Area D is an area within the treatment shed and adjacent to the treatment tank, but not affected by tank wastes.

Area E is the location of the former UST (AOC 2) which contained the diesel fuel.

AOC 1 – the treated wood drying area is not shown on the figure, but underwent several successive excavations and re-sampling to achieve protective human health conditions.

Area A1 and A2 soils were excavated two feet below the bottom of the drain tile, and the resulting soils disposed of as hazardous waste. Verification samples were taken, and if the resulting excavation yielded PCP and TPH levels higher than the Ohio cleanup standards, further excavation was done until these levels were met. The area was covered and leveled to ground surface with clean soil.

Areas A3 to A10 underwent up to four rounds of horizontal and vertical excavation and verification sampling, down to bedrock and in some cases, several feet into bedrock (in a 15' horizontal path, 7.5 feet to each side of the most contaminated area) until Ohio cleanup standards were met.

In Area B, soil was excavated to a depth of one foot, with the soils disposed as hazardous waste. Verification samples were taken, and if the Ohio cleanup goals were not met, another foot was excavated, and disposed of as hazardous waste. These steps were repeated until Ohio cleanup standards were met. After the excavations were complete, the area was filled to ground surface with clean soil.

In Area C, soils were excavated to a depth of one foot, and disposed of as hazardous waste. Then two additional feet of soil were excavated, and removed. Again, if the Ohio cleanup levels were not met, another foot was excavated, and this process was repeated until the verification samples indicated the Ohio cleanup standards were met. The area was then filled to ground surface with clean soil.

In Area D, there were no excavations, since sampling verified this area met the Ohio cleanup standards for TPH and PCP.

Area E, (AOC 2) - the location of the UST containing the diesel fuel. This area was dug out around, on top, and underneath the tank until confirmatory sampling showed that TPH levels met the Ohio cleanup standards.

No detectable contamination was found in the downgradient monitoring well. (EPA Test Methods 8270 and 418.1 were used). Groundwater analytical results for ODNR Hocking are found in Appendix A, and soil analytical results are found in Appendix B.

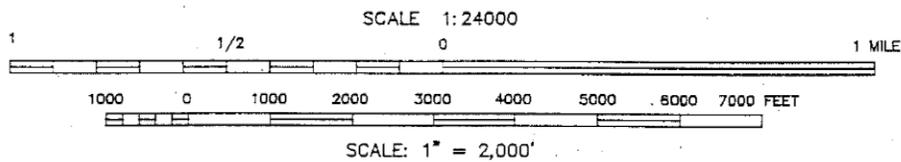
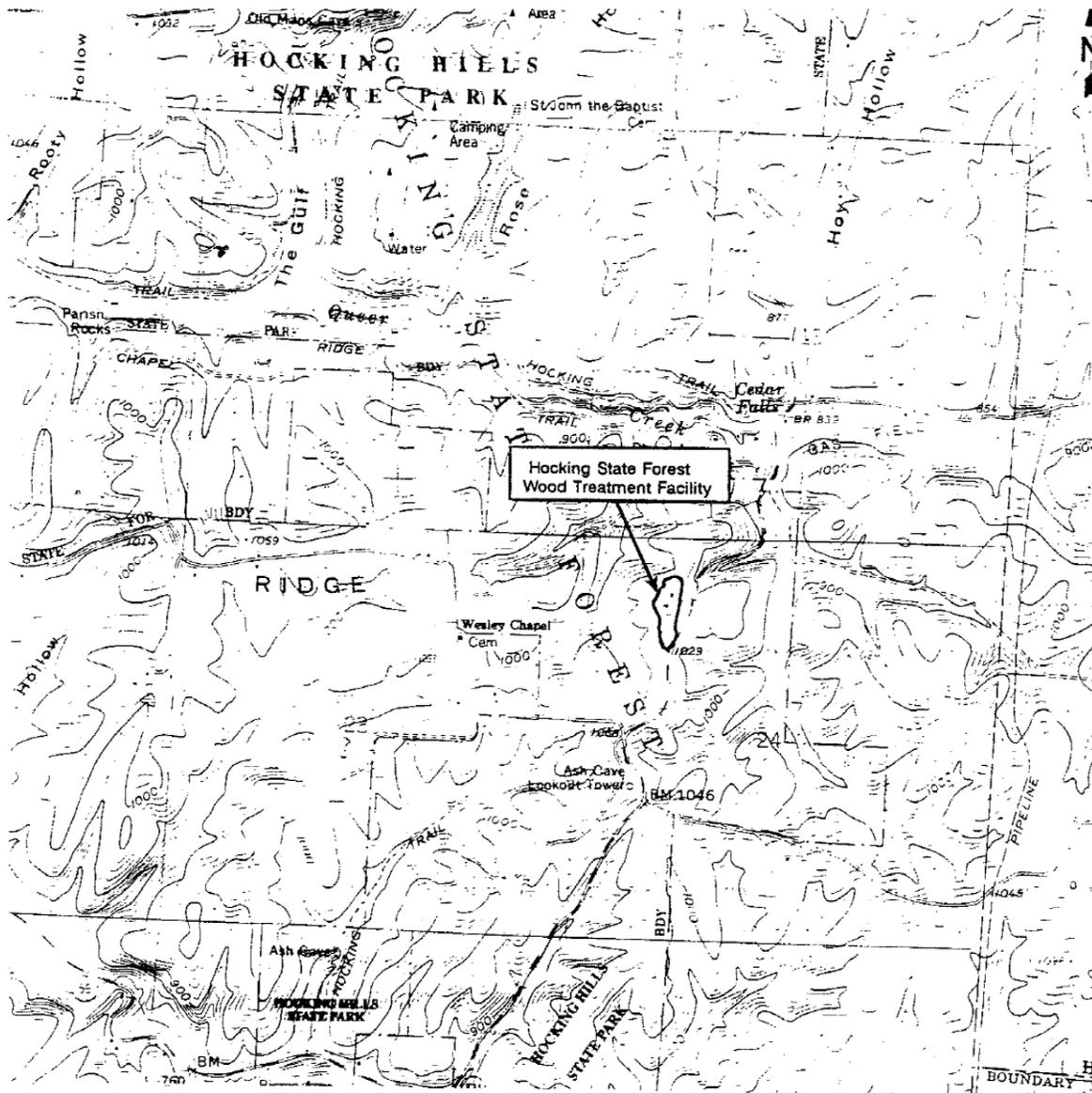
Conclusion

Based upon the information presented in this document and in the site file regarding releases and remedial actions performed at this site to address those releases, EPA has determined that no further action by the federal RCRA corrective action program is necessary at ODNR Hocking at this time. The site conditions were assessed and compared to the state cleanup goals. EPA believes that the site cleanup has met those objectives. After review of the efforts undertaken and confirmed at the site by the sampling conducted by Roy F. Weston Inc., EPA believes that the cleanup of the facility was effective and met the performance standards required.

The ODNR Hocking facility has undergone extensive sampling and removal of contaminated soil. Downgradient groundwater was sampled and analyzed resulting in no detectable site contaminants. The former SWMUs and other areas investigated do not present concern for human health and the environment under the current conditions. EPA believes ODNR Hocking has achieved a CA070NO (no further investigation needed), CA400 (remedy decision), CA550-NR (remedy construction complete-no remedy) CA 900 NL (No Controls are Necessary).” EPA reserves the right to change, modify or otherwise rescind this determination based on new information or information not available to EPA at the time of this determination.

On the following two pages, Figure 1 (Site Location) and Figure 2 (ODNR Hocking Facility Layout) are shown.

Figure 1 – Location Map for ODNR Hocking Hills State Park



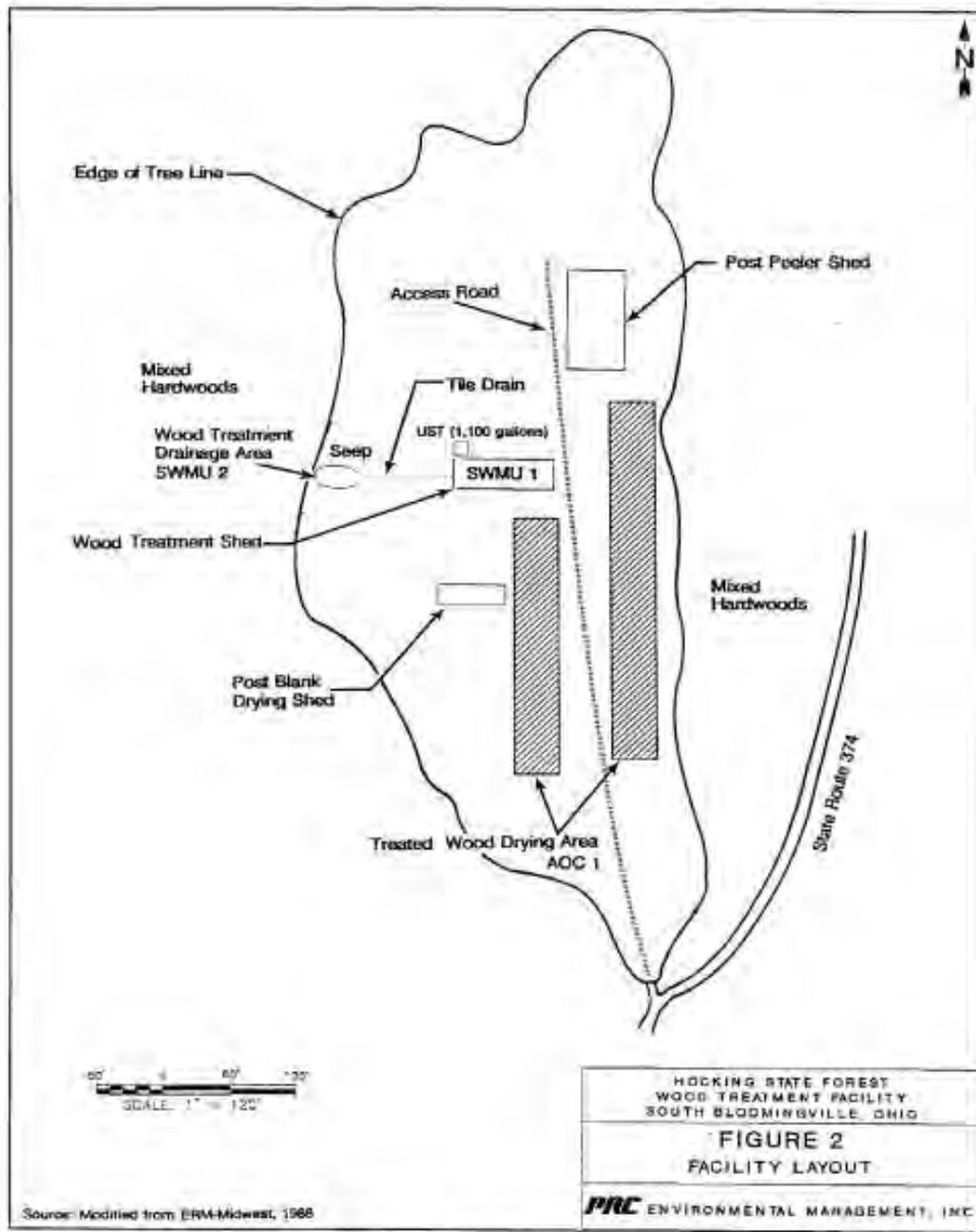
Source: Modified from USGS, 1990

HOCKING STATE FOREST
WOOD TREATMENT FACILITY
SOUTH BLOOMINGVILLE, OHIO

FIGURE 1
FACILITY LOCATION

PRC ENVIRONMENTAL MANAGEMENT, INC

Figure 2 – Site Diagram



Appendix A – Groundwater Analytical Results

ZANDE ENVIRONMENTAL SERVICE, INC.
 1233 DUBLIN RD.
 COLUMBUS, OHIO 43215
 (614) 486-4383
 FAX (614) 486-4387
 OHIO EPA APPROVAL # 1030

PAGE : 1

R&R INTERNATIONAL, INC.
 4920 E. FIFTH AVENUE
 COLUMBUS, OHIO 43219
 ATT'N: MS. BRENDA ABKE
 PROJECT #: 302084
 SAMPLED BY: S. GUTHRIE
 EPA METHOD #: 8270 (SEMI-VOLATILE ORGANICS)
 SAMPLE TYPE: WATER

DATE : 03/24/93
 CUSTOMER # : R&R2
 SAMPLE ID : 21804
 SAMPLE DATE : 03/15/93
 SAMPLE TIME : 10:50
 DATE REC'D : 03/15/93
 SITE LOCATION : HOCKING STATE FORI
 SITE ID : 1 (302084001)

ACID EXTRACTABLE COMPOUNDS	RESULT	UNITS
<u>ACIDS/PHENOLS</u>		
BENZOIC ACID	<10	ug/L
PHENOL	<10	ug/L
2-CHLOROPHENOL	<10	ug/L
2,4-DICHLOROPHENOL	<10	ug/L
4-CHLORO-3-METHYLPHENOL	<10	ug/L
2,4,5-TRICHLOROPHENOL	<10	ug/L
2,4,6-TRICHLOROPHENOL	<10	ug/L
PENTACHLOROPHENOL	<10	ug/L
2-METHYLPHENOL	<10	ug/L
4-METHYLPHENOL	<10	ug/L
2,4-DIMETHYLPHENOL	<10	ug/L
2-NITROPHENOL	<10	ug/L
4-NITROPHENOL	<10	ug/L
2,4-DINITROPHENOL	<10	ug/L
4,6-DINITRO-2-METHYLPHENOL	<10	ug/L

NON-TARGET-LIST (TENTATIVELY IDENTIFIED) COMPOUNDS: NONE OBSERVED.

QUALITY CONTROL SECTION

(1) SURROGATE STANDARD RECOVERIES CONTROL LIMITS (% RECOVERY)

PHENOL-d6	62	10-94%
2,4,6-TRIBROMOPHENOL	66	10-123%
2-FLUOROPHENOL	28	21-100%

(2) EXTRACTION INFORMATION

FRACTION	ANALYST	EXTRACTION TECHNICIANS	EXTRACTION DATE	ANALYSIS DATE
ACID EXTRACTABLES	CJM	JH	03-18-93	03-23-93

EXTRACTION INFORMATION

SAMPLE VOLUME EXTRACTED: 500 mLs
 SURROGATE LOT: 294826 @ 200 ug/mL
 ANALYSIS FILE: 465724 INSTRUMENT: MD-802

Appendix A – Groundwater Analytical Results Continued

ZANDE ENVIRONMENTAL SERVICE, INC.
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COLUMBUS, OH 43215
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OHIO EPA APPROVAL #1030
SAMPLE ANALYSIS REPORT

Date: 03/24/93

R&R INTERNATIONAL, INC.
4920 E. FIFTH AVENUE
COLUMBUS, OH 43219

CUSTOMER # : R&R2
SAMPLE ID : 21805
SAMPLE DATE: 03/15/93
SAMPLE TIME: 10:55
DATE RECEIVED: 03/15/93
SITE LOCATION: HOCKING STATE FOREST
SITE ID: 2
SAMPLE TYPE: WATER

ATTN: MS. BRENDA ABKE
PROJECT #: 302084
SAMPLED BY: S. GUTHRIE

NOTE: SAMPLE NO. 302084002

TEST	EPA METHOD #	DETECTION RESULT	DETECTION LIMIT	UNITS	COMPLETION DATE	ANALYST
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EXTRACTIONS

CONTINUOUS LIQUID/LIQUID EXTRACTION	3520				03/18/93	JH
NOTE: APPLIES TO METHODS 608, 625, 8080, 8270, FOR WATER SAMPLES, (PESTICIDES/PCB'S/8NA'S).						

ORGANICS

ACID EXTRACTABLE COMPOUNDS	8270				03/23/93	CJM
NOTE: SEE ATTACHED REPORT.						

REVIEWED BY: Daniel B. Smith
CHEMIST

MAR 30 1993
DATE

US EPA ARCHIVE DOCUMENT

Appendix A – Groundwater Analytical Results Continued

ZANDE ENVIRONMENTAL SERVICE, INC.
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 OHIO EPA APPROVAL # 1030

PAGE : 1

R&R INTERNATIONAL, INC.
 4920 E. FIFTH AVENUE
 COLUMBUS, OHIO 43219
 ATT'N: MS. BRENDA ABKE
 PROJECT #: 302084
 SAMPLED BY: S. GUTHRIE
 EPA METHOD #: 8270 (SEMI-VOLATILE ORGANICS)
 SAMPLE TYPE: WATER

DATE : 03/24/93
 CUSTOMER # : R&R2
 SAMPLE ID : 21005
 SAMPLE DATE : 03/15/93
 SAMPLE TIME : 10:55
 DATE REC'D : 03/15/93
 SITE LOCATION : HOCKING STATE FOREST
 SITE ID : 2 (302084002)

ACID EXTRACTABLE COMPOUNDS	RESULT	UNITS
<u>ACIDS/PHENOLS</u>		
BENZOIC ACID	<10	ug/L
PHENOL	<10	ug/L
2-CHLOROPHENOL	<10	ug/L
2,4-DICHLOROPHENOL	<10	ug/L
4-CHLORO-3-METHYLPHENOL	<10	ug/L
2,4,5-TRICHLOROPHENOL	<10	ug/L
2,4,6-TRICHLOROPHENOL	<10	ug/L
PENTACHLOROPHENOL	<10	ug/L
2-METHYLPHENOL	<10	ug/L
4-METHYLPHENOL	<10	ug/L
2,4-DIMETHYLPHENOL	<10	ug/L
2-NITROPHENOL	<10	ug/L
4-NITROPHENOL	<10	ug/L
2,4-DINITROPHENOL	<10	ug/L
4,6-DINITRO-2-METHYLPHENOL	<10	ug/L

NON-TARGET-LIST (TENTATIVELY IDENTIFIED) COMPOUNDS: NONE OBSERVED.

QUALITY CONTROL SECTION

(1) SURROGATE STANDARD RECOVERIES CONTROL LIMITS (% RECOVERY)

PHENOL-d6	76	10-94%
2,4,6-TRIBROMOPHENOL	99	10-123%
2-FLUOROPHENOL	36	21-100%

(2) EXTRACTION INFORMATION

FRACTION	ANALYST	EXTRACTION TECHNICIANS	EXTRACTION DATE	ANALYSIS DATE
ACID EXTRACTABLES	CJM	JH	03-18-93	03-23-93

EXTRACTION INFORMATION

SAMPLE VOLUME EXTRACTED: 500 mLs
 SURROGATE LOT: 294826 @ 200 ug/mL
 ANALYSIS FILE: 465725 INSTRUMENT: MD-802

US EPA ARCHIVE DOCUMENT

Appendix A – Groundwater Analytical Results Continued

ZANDE ENVIRONMENTAL SERVICE, INC.
1233 DUBLIN RD,
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OHIO EPA APPROVAL #1030
SAMPLE ANALYSIS REPORT

Date: 03/25/93

R&R INTERNATIONAL, INC.
4920 E. FIFTH AVENUE
COLUMBUS, OH 43219

CUSTOMER # : R&R2
SAMPLE ID : 21806
SAMPLE DATE: 03/15/93
SAMPLE TIME: 11:25
DATE RECEIVED: 03/15/93

ATTN: MS. BRENDA ABKE
PROJECT #: 302084
SAMPLED BY: S. GUTHRIE

SITE LOCATION: HOCKING STATE FOREST
SITE ID: 3
SAMPLE TYPE: WATER

NOTE: SAMPLE NO. 302084003

TEST	EPA METHOD #	RESULT	DETECTION LIMIT	UNITS	COMPLETION DATE	ANALYST
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EXTRACTIONS

CONTINUOUS LIQUID/LIQUID EXTRACTION 3520 03/18/93 JH
NOTE: APPLIES TO METHODS 608, 625, 8080, 8270, FOR WATER
SAMPLES, (PESTICIDES/PCB'S/BNA'S).

ORGANICS

ACID EXTRACTABLE COMPOUNDS 8270 03/23/93 LJM
NOTE: SEE ATTACHED REPORT.

REVIEWED BY: *Daniel P. Smith*
CHEMIST

MAR. 30 1993
DATE

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Appendix A – Groundwater Analytical Results Continued

ZANDE ENVIRONMENTAL SERVICE, INC.
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 OHIO EPA APPROVAL # 1030

PAGE : 1

R&R INTERNATIONAL, INC.
 4920 E. FIFTH AVENUE
 COLUMBUS, OHIO 43219
 ATT'N: MS. BRENDA ABKE
 PROJECT #: 302084
 SAMPLED BY: S. GUTHRIE
 EPA METHOD #: 8270 (SEMIVOLATILE ORGANICS)
 SAMPLE TYPE: WATER

DATE : 03/24/93
 CUSTOMER # : R&R2
 SAMPLE ID : 21806
 SAMPLE DATE : 03/15/93
 SAMPLE TIME : 11:25
 DATE REC'D : 03/15/93
 SITE LOCATION : HOCKING STATE FOREST
 SITE ID : 3 (302084003)

<u>ACID EXTRACTABLE COMPOUNDS</u>	<u>RESULT</u>	<u>UNITS</u>
<u>ACIDS/PHENOLS</u>		
BENZOIC ACID	<10	ug/L
PHENOL	<10	ug/L
2-CHLOROPHENOL	<10	ug/L
2,4-DICHLOROPHENOL	<10	ug/L
4-CHLORO-3-METHYLPHENOL	<10	ug/L
2,4,5-TRICHLOROPHENOL	<10	ug/L
2,4,6-TRICHLOROPHENOL	<10	ug/L
PENTACHLOROPHENOL	<10	ug/L
2-METHYLPHENOL	<10	ug/L
4-METHYLPHENOL	<10	ug/L
2,4-DIMETHYLPHENOL	<10	ug/L
2-NITROPHENOL	<10	ug/L
4-NITROPHENOL	<10	ug/L
2,4-DINITROPHENOL	<10	ug/L
4,6-DINITRO-2-METHYLPHENOL	<10	ug/L

NON-TARGET-LIST (TENTATIVELY IDENTIFIED) COMPOUNDS: NONE OBSERVED.

QUALITY CONTROL SECTION

<u>(1) SURROGATE STANDARD RECOVERIES</u>		<u>CONTROL LIMITS (% RECOVERY)</u>
PHENOL-d6	63	10-94%
2,4,6-TRIBROMOPHENOL	83	10-123%
2-FLUOROPHENOL	33	21-100%

(2) EXTRACTION INFORMATION

<u>FRACTION</u>	<u>ANALYST</u>	<u>EXTRACTION TECHNICIANS</u>	<u>EXTRACTION DATE</u>	<u>ANALYSIS DATE</u>
ACID EXTRACTABLES	CJM	JH	03-18-93	03-23-93

EXTRACTION INFORMATION

SAMPLE VOLUME EXTRACTED: 500 mLs
 SURROGATE LOT: 294826 @ 200 ug/mL
 ANALYSIS FILE: 465726 INSTRUMENT: MD-802

US EPA ARCHIVE DOCUMENT

Appendix A – Groundwater Analytical Results Continued

ZANDE ENVIRONMENTAL SERVICE, INC.
 1233 DUBLIN RD.
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OHIO EPA APPROVAL #1030
 SAMPLE ANALYSIS REPORT

Date: 03/31/93

R&R INTERNATIONAL, INC.
 4920 E. FIFTH AVENUE
 COLUMBUS, OH 43219

CUSTOMER # : R&R2
 SAMPLE ID : 21807
 SAMPLE DATE: 03/12/93
 SAMPLE TIME: 00:00
 DATE RECEIVED: 03/15/93
 SITE LOCATION: ZANDE LABS
 SITE ID: TRIP BLK
 SAMPLE TYPE: WATER

ATTN: MS. BRENDA ABKE
 PROJECT #: 302084
 SAMPLED BY: JH

TEST	EPA METHOD #	RESULT	DETECTION LIMIT	UNITS	COMPLETION DATE	ANALYST
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EXTRACTIONS

CONTINUOUS LIQUID/LIQUID EXTRACTION 3520 03/18/93 JH
 NOTE: APPLIES TO METHODS 608, 625, 8080, 8270, FOR WATER
 SAMPLES, (PESTICIDES/PCB's/BNA's).

ORGANICS

ACID EXTRACTABLE COMPOUNDS 8270 03/23/93 CJM
 NOTE: SEE ATTACHED REPORT.

REVIEWED BY: *Daniel F. Smith*
 CHEMIST

MAR 31 1993
 DATE

US EPA ARCHIVE DOCUMENT

Appendix A – Groundwater Analytical Results Continued

ZANDE ENVIRONMENTAL SERVICE, INC.
1233 DUBLIN RD.
COLUMBUS, OH 43215
(614)486-4383

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OHIO EPA APPROVAL #1030
SAMPLE ANALYSIS REPORT

Date: 03/31/93

R&R INTERNATIONAL, INC.
4920 E. FIFTH AVENUE
COLUMBUS, OH 43219

CUSTOMER # : R&R2
SAMPLE ID : 21807
SAMPLE DATE: 03/12/93
SAMPLE TIME: 00:00
DATE RECEIVED: 03/15/93
SITE LOCATION: ZANDE LABS
SITE ID: TRIP BLK
SAMPLE TYPE: WATER

ATTN: MS. BRENDA ABKE
PROJECT #: 302084
SAMPLED BY: JH

TEST	EPA METHOD #	RESULT	DETECTION LIMIT	UNITS	COMPLETION DATE	ANALYST
------	--------------	--------	-----------------	-------	-----------------	---------

EXTRACTIONS

CONTINUOUS LIQUID/LIQUID EXTRACTION 3520 03/18/93 JH
NOTE: APPLIES TO METHODS 608, 625, 8080, 8270, FOR WATER
SAMPLES, (PESTICIDES/PCB'S/BNA'S).

ORGANICS

ACID EXTRACTABLE COMPOUNDS 8270 03/23/93 CJM
NOTE: SEE ATTACHED REPORT.

REVIEWED BY: David P. Smith MAR. 31 1993
CHEMIST DATE

US EPA ARCHIVE DOCUMENT

Appendix A – Groundwater Analytical Results Continued

ZANDE ENVIRONMENTAL SERVICE, INC.
 1233 DUBLIN RD.
 COLUMBUS, OHIO 43215
 (614) 486-4383
 FAX (614) 486-4387
 OHIO EPA APPROVAL # 1030

PAGE : 1

R&R INTERNATIONAL, INC.
 4920 E. FIFTH AVENUE
 COLUMBUS, OHIO 43219
 ATT'N: MS. BRENDA ABKE
 PROJECT #: 302084
 SAMPLED BY: JH
 EPA METHOD #: 8270 (SEMIVOLATILE ORGANICS)
 SAMPLE TYPE: WATER

DATE : 03/24/93
 CUSTOMER # : R&R2
 SAMPLE ID : 21807
 SAMPLE DATE : 03/12/93
 SAMPLE TIME : 00:00
 DATE REC'D : 03/15/93
 SITE LOCATION : HOCKING STATE FOREST
 SITE ID : TRIP BLANK

ACID EXTRACTABLE COMPOUNDS	RESULT	UNITS
<u>ACIDS/PHEMOLS</u>		
BENZOIC ACID	<10	ug/L
PHENOL	<10	ug/L
2-CHLOROPHENOL	<10	ug/L
2,4-DICHLOROPHENOL	<10	ug/L
4-CHLORO-3-METHYLPHENOL	<10	ug/L
2,4,5-TRICHLOROPHENOL	<10	ug/L
2,4,6-TRICHLOROPHENOL	<10	ug/L
PENTACHLOROPHENOL	<10	ug/L
2-METHYLPHENOL	<10	ug/L
4-METHYLPHENOL	<10	ug/L
2,4-DIMETHYLPHENOL	<10	ug/L
2-NITROPHENOL	<10	ug/L
4-NITROPHENOL	<10	ug/L
2,4-DINITROPHENOL	<10	ug/L
4,6-DINITRO-2-METHYLPHENOL	<10	ug/L

NON-TARGET-LIST (TENTATIVELY IDENTIFIED) COMPOUNDS: NONE OBSERVED.

QUALITY CONTROL SECTION

(1) SURROGATE STANDARD RECOVERIES CONTROL LIMITS (% RECOVERY)

PHENOL-d6	75	10-94%
2,4,6-TRIBROMOPHENOL	93	10-123%
2-FLUOROPHENOL	34	21-100%

(2) EXTRACTION INFORMATION

FRACTION	ANALYST	EXTRACTION TECHNICIANS	EXTRACTION DATE	ANALYSIS DATE
ACID EXTRACTABLES	CJM	JH	03-18-93	03-23-93
RE-EXTRACTION	CJM	JH	03-23-93	03-30-93

EXTRACTION INFORMATION

SAMPLE VOLUME EXTRACTED: 500 mLs
 SURROGATE LOT: 294826 @ 200 ug/mL
 ANALYSIS FILE: 465727/465817 INSTRUMENT: MD-802

US EPA ARCHIVE DOCUMENT

Appendix B – Soil Analytical Results Continued



WADSWORTH/ALERT Laboratories
Division of Enesco Incorporated

Corporate and Laboratory:

4101 Shuffel Drive, NW
North Canton, OH 44720

216-497-9396
FAX 216-497-0772

ANALYTICAL REPORT

PROJECT NO. 10028-001-001

ODNR

MATT CRAIN

ROY F. WESTON INC.

ENESCO-WADSWORTH/ALERT LABORATORIES

Kimberly J. Laisy

Kimberly J. Laisy
Project Manager

Mark P. Nebiolo

Mark P. Nebiolo
Laboratory Manager

March 10, 1993

Laboratories:
Pittsburgh, PA
412-826-5477

Appendix B – Soil Analytical Results Continued



ROY F. WESTON INC.

HCWTP-A9RS1 3-5-93

WO #: C0909102

LAB #: A3C080001-001

DATE RECEIVED: 3/06/93

MATRIX: SOLID

----- TCL SEMIVOLATILE ORGANICS - ACID -----

<u>PARAMETER</u>	<u>RESULT</u> (ug/ka)	<u>REPORTING</u> <u>LIMIT</u>	<u>METHOD</u>	<u>EXTRACTION-</u> <u>ANALYSIS DATE</u>	<u>QC</u> <u>BATCH</u>
4-Chloro-3-methylphenol	ND	330	SW846 8270	3/07- 3/08/93	3067038
2-Chlorophenol	ND	330	SW846 8270	3/07- 3/08/93	3067038
2,4-Dichlorophenol	ND	330	SW846 8270	3/07- 3/08/93	3067038
2,4-Dimethylphenol	ND	330	SW846 8270	3/07- 3/08/93	3067038
2,4-Dinitrophenol	ND	1,600	SW846 8270	3/07- 3/08/93	3067038
4,6-Dinitro- 2-methylphenol	ND	1,600	SW846 8270	3/07- 3/08/93	3067038
2-Methylphenol	ND	330	SW846 8270	3/07- 3/08/93	3067038
4-Methylphenol	ND	330	SW846 8270	3/07- 3/08/93	3067038
2-Nitrophenol	ND	330	SW846 8270	3/07- 3/08/93	3067038
4-Nitrophenol	ND	1,600	SW846 8270	3/07- 3/08/93	3067038
Pentachlorophenol	60 J	1,600	SW846 8270	3/07- 3/08/93	3067038
Phenol	ND	330	SW846 8270	3/07- 3/08/93	3067038
2,4,5-Trichlorophenol	ND	330	SW846 8270	3/07- 3/08/93	3067038
2,4,6-Trichlorophenol	ND	330	SW846 8270	3/07- 3/08/93	3067038

<u>SURROGATE RECOVERY</u>	<u>%</u>	<u>ACCEPTABLE LIMITS</u>
2-Fluorophenol	64	(25 - 121)
Phenol-d5	69	(24 - 113)
2,4,6-Tribromophenol	110	(19 - 122)

NOTE: AS RECEIVED
 ND (NONE DETECTED)
 J (DETECTED, BUT BELOW QUANTITATION LIMIT; ESTIMATED VALUE)

US EPA ARCHIVE DOCUMENT

Appendix B – Soil Analytical Results Continued



ROY F. WESTON INC.

HCWTF-A9RS1 3-5-93

WO #: C0909

LAB #: A3C080001-001

DATE RECEIVED: 3/06/93

MATRIX: SOLID

----- INORGANIC ANALYTICAL REPORT -----

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>		<u>METHOD</u>	<u>PREPARATION - QC</u>	
		<u>LIMIT</u>	<u>UNIT</u>		<u>ANALYSIS DATE</u>	<u>BATCH</u>
Petroleum Hydrocarbons Total Recoverable	ND	10	mg/kg	USEPA 418.1	3/07- 3/08/93	3067042
Solids, Total (TS)	79	0.5	%	USEPA 160.3	3/08/93	3067023

Appendix B – Soil Analytical Results Continued



ROY F. WESTON INC.

HCWTF-A9RS2 3-5-93

WO #: C0911102
 LAB #: A3C080001-002
 MATRIX: SOLID

DATE RECEIVED: 3/06/93

----- TCL SEMIVOLATILE ORGANICS - ACID -----

PARAMETER	RESULT (ug/kg)	REPORTING LIMIT	METHOD	EXTRACTION- ANALYSIS DATE	QC BATCH
4-Chloro-3-methylphenol	ND	330	SW846 8270	3/07- 3/08/93	3067038
2-Chlorophenol	ND	330	SW846 8270	3/07- 3/08/93	3067038
2,4-Dichlorophenol	ND	330	SW846 8270	3/07- 3/08/93	3067038
2,4-Dimethylphenol	ND	330	SW846 8270	3/07- 3/08/93	3067038
2,4-Dinitrophenol	ND	1,600	SW846 8270	3/07- 3/08/93	3067038
4,6-Dinitro- 2-methylphenol	ND	1,600	SW846 8270	3/07- 3/08/93	3067038
2-Methylphenol	ND	330	SW846 8270	3/07- 3/08/93	3067038
4-Methylphenol	ND	330	SW846 8270	3/07- 3/08/93	3067038
2-Nitrophenol	ND	330	SW846 8270	3/07- 3/08/93	3067038
4-Nitrophenol	ND	1,600	SW846 8270	3/07- 3/08/93	3067038
Pentachlorophenol	800 J	1,600	SW846 8270	3/07- 3/08/93	3067038
Phenol	ND	330	SW846 8270	3/07- 3/08/93	3067038
2,4,5-Trichlorophenol	ND	330	SW846 8270	3/07- 3/08/93	3067038
2,4,6-Trichlorophenol	ND	330	SW846 8270	3/07- 3/08/93	3067038

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
2-Fluorophenol	57	(25 - 121)
Phenol-d5	61	(24 - 113)
2,4,6-Tribromophenol	107	(19 - 122)

NOTE: AS RECEIVED
 ND (NONE DETECTED)
 J (DETECTED, BUT BELOW QUANTITATION LIMIT; ESTIMATED VALUE)

US EPA ARCHIVE DOCUMENT

Appendix B – Soil Analytical Results Continued



WADSWORTH/ALERT Laboratories
Division of Enseco Incorporated

Corporate and Laboratory: 216-497-9396
4101 Shufflet Drive, NW North Canton, OH 44720 FAX: 216-497-0772

ANALYTICAL REPORT

PROJECT NO. 10028-001-001

ODNR-HOCKING COUNTY

MATT CRAIN

ROY P. WESTON INC.

ENSECO-WADSWORTH/ALERT LABORATORIES

Kimberly J. Daisy
Kimberly J. Daisy
Project Manager

Mark P. Nebiolo
Mark P. Nebiolo
Laboratory Manager

March 15, 1993

A Corning Company

Laboratories:
Pittsburgh, PA
412-826-5477
Tampa, FL
813-621-0784

US EPA ARCHIVE DOCUMENT

Appendix B – Soil Analytical Results Continued



ROY F. WESTON INC.

HCWTP-953 3-8-93

WO #: C1084102
 LAB #: A3C090005-001
 MATRIX: WATER

DATE RECEIVED: 3/08/93

----- TCL SEMIVOLATILE ORGANICS - ACID -----

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION- ANALYSIS DATE	QC BATCH
4-Chloro-3-methylphenol	ND	10	SW846 8270	3/09- 3/10/93	3068020
2-Chlorophenol	ND	10	SW846 8270	3/09- 3/10/93	3068020
2,4-Dichlorophenol	ND	10	SW846 8270	3/09- 3/10/93	3068020
2,4-Dimethylphenol	ND	10	SW846 8270	3/09- 3/10/93	3068020
2,4-Dinitrophenol	ND	50	SW846 8270	3/09- 3/10/93	3068020
4,6-Dinitro- 2-methylphenol	ND	50	SW846 8270	3/09- 3/10/93	3068020
2-Methylphenol	ND	10	SW846 8270	3/09- 3/10/93	3068020
4-Methylphenol	ND	10	SW846 8270	3/09- 3/10/93	3068020
2-Nitrophenol	ND	10	SW846 8270	3/09- 3/10/93	3068020
4-Nitrophenol	ND	50	SW846 8270	3/09- 3/10/93	3068020
Pentachlorophenol	12 J	50	SW846 8270	3/09- 3/10/93	3068020
Phenol	ND	10	SW846 8270	3/09- 3/10/93	3068020
2,4,5-Trichlorophenol	ND	10	SW846 8270	3/09- 3/10/93	3068020
2,4,6-Trichlorophenol	ND	10	SW846 8270	3/09- 3/10/93	3068020

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
2-Fluorophenol	41	(21 - 100)
Phenol-d5	25	(10 - 94)
2,4,6-Tribromophenol	92	(10 - 123)

NOTE: AS RECEIVED
 ND (NONE DETECTED)
 J (DETECTED, BUT BELOW QUANTITATION LIMIT; ESTIMATED VALUE)

Appendix B – Soil Analytical Results Continued



ROY F. WESTON INC.

HCWTP-EL200 3-8-93

WO #: C1085102
 LAB #: A3C090005-002
 MATRIX: WATER

DATE RECEIVED: 3/08/93

----- TCL SEMIVOLATILE ORGANICS - ACID -----

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION- ANALYSIS DATE	QC BATCH
4-Chloro-3-methylphenol	ND	10	SW846 8270	3/09- 3/10/93	3068020
2-Chlorophenol	ND	10	SW846 8270	3/09- 3/10/93	3068020
2,4-Dichlorophenol	ND	10	SW846 8270	3/09- 3/10/93	3068020
2,4-Dimethylphenol	ND	10	SW846 8270	3/09- 3/10/93	3068020
2,4-Dinitrophenol	ND	50	SW846 8270	3/09- 3/10/93	3068020
4,6-Dinitro- 2-methylphenol	ND	50	SW846 8270	3/09- 3/10/93	3068020
2-Methylphenol	ND	10	SW846 8270	3/09- 3/10/93	3068020
4-Methylphenol	ND	10	SW846 8270	3/09- 3/10/93	3068020
2-Nitrophenol	ND	10	SW846 8270	3/09- 3/10/93	3068020
4-Nitrophenol	ND	50	SW846 8270	3/09- 3/10/93	3068020
Pentachlorophenol	11 J	50	SW846 8270	3/09- 3/10/93	3068020
Phenol	ND	10	SW846 8270	3/09- 3/10/93	3068020
2,4,5-Trichlorophenol	ND	10	SW846 8270	3/09- 3/10/93	3068020
2,4,6-Trichlorophenol	ND	10	SW846 8270	3/09- 3/10/93	3068020

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
2-Fluorophenol	41	(21 - 100)
Phenol-d5	26	(10 - 94)
2,4,6-Tribromophenol	100	(10 - 123)

NOTE: AS RECEIVED
 ND (NONE DETECTED)
 J (DETECTED, BUT BELOW QUANTITATION LIMIT; ESTIMATED VALUE)

US EPA ARCHIVE DOCUMENT

Appendix B – Soil Analytical Results Continued

ZANDE ENVIRONMENTAL SERVICE, INC.
 1233 DUBLIN RD.
 COLUMBUS, OHIO 43215
 (614) 486-4383
 FAX (614) 486-4387
 OHIO EPA APPROVAL # 1030

PAGE : 1

R&R INTERNATIONAL, INC.
 4920 E. FIFTH AVENUE
 COLUMBUS, OHIO 43219
 ATT'N: MS. BRENDA ABKE
 PROJECT #: 302084
 SAMPLED BY: S. GUTHRIE
 EPA METHOD #: 8270 (SEMIVOLATILE ORGANICS)
 SAMPLE TYPE: WATER

DATE : 03/24/93
 CUSTOMER # : R&R2
 SAMPLE ID : 21804
 SAMPLE DATE : 03/15/93
 SAMPLE TIME : 10:50
 DATE REC'D : 03/15/93
 SITE LOCATION : HOCKING STATE FOREST
 SITE ID : 1 (302084001)

ACID EXTRACTABLE COMPOUNDS	RESULT	UNITS
ACIDS/PHENOLS		
BENZOIC ACID	<10	ug/L
PHENOL	<10	ug/L
2-CHLOROPHENOL	<10	ug/L
2, 4-DICHLOROPHENOL	<10	ug/L
4-CHLORO-3-METHYLPHENOL	<10	ug/L
2, 4, 5-TRICHLOROPHENOL	<10	ug/L
2, 4, 6-TRICHLOROPHENOL	<10	ug/L
PENTACHLOROPHENOL	<10	ug/L
2-METHYLPHENOL	<10	ug/L
4-METHYLPHENOL	<10	ug/L
2, 4-DIMETHYLPHENOL	<10	ug/L
2-NITROPHENOL	<10	ug/L
4-NITROPHENOL	<10	ug/L
2, 4-DINITROPHENOL	<10	ug/L
4, 6-DINITRO-2-METHYLPHENOL	<10	ug/L

NON-TARGET-LIST (TENTATIVELY IDENTIFIED) COMPOUNDS: NONE OBSERVED.

QUALITY CONTROL SECTION

(1) SURROGATE STANDARD RECOVERIES		CONTROL LIMITS (% RECOVERY)
PHENOL-d6	62	10-94%
2, 4, 6-TRIBROMOPHENOL	66	10-123%
2-FLUOROPHENOL	28	21-100%

(2) EXTRACTION INFORMATION

FRACTION	ANALYST	EXTRACTION TECHNICIANS	EXTRACTION DATE	ANALYSIS DATE
ACID EXTRACTABLES	CJH	JH	03-18-93	03-23-93

EXTRACTION INFORMATION

SAMPLE VOLUME EXTRACTED: 500 mLs
 SURROGATE LOT: 294026 @ 200 ug/mL
 ANALYSIS FILE: 465724 INSTRUMENT: MD-802

US EPA ARCHIVE DOCUMENT

Appendix B – Soil Analytical Results Continued

03/25/94 12:58

614 237 6558

R & R Int'l

ZANDE ENVIRONMENTAL SERVICE, INC.
 1233 DUBLIN RD.
 COLUMBUS, OHIO 43215
 (614) 486-4383
 FAX (614) 486-4387
 OHIO EPA APPROVAL # 1030

PAGE : 1

R&R INTERNATIONAL, INC.
 4920 E. FIFTH AVENUE
 COLUMBUS, OHIO 43219
 ATT'N: MS. BRENDA ARKE
 PROJECT #: 302084
 SAMPLED BY: S. GUTHRIE
 EPA METHOD #: 8270 (SEMIVOLATILE ORGANICS)
 SAMPLE TYPE: WATER

DATE : 03/24/93
 CUSTOMER # : R&R2
 SAMPLE ID : 21805
 SAMPLE DATE : 03/15/93
 SAMPLE TIME : 10:55
 DATE REC'D : 03/15/93
 SITE LOCATION : HOCKING STATE FOREST
 SITE ID : 2 (302084002)

ACID EXTRACTABLE COMPOUNDS	RESULT	UNITS
ACIDS/PHENOLS		
BENZOIC ACID	<10	ug/L
PHENOL	<10	ug/L
2-CHLOROPHENOL	<10	ug/L
2,4-DICHLOROPHENOL	<10	ug/L
4-CHLORO-3-METHYLPHENOL	<10	ug/L
2,4,5-TRICHLOROPHENOL	<10	ug/L
2,4,6-TRICHLOROPHENOL	<10	ug/L
PENTACHLOROPHENOL	<10	ug/L
2-METHYLPHENOL	<10	ug/L
4-METHYLPHENOL	<10	ug/L
2,4-DIMETHYLPHENOL	<10	ug/L
2-NITROPHENOL	<10	ug/L
4-NITROPHENOL	<10	ug/L
2,4-DINITROPHENOL	<10	ug/L
4,6-DINITRO-2-METHYLPHENOL	<10	ug/L

NON-TARGET-LIST (TENTATIVELY IDENTIFIED) COMPOUNDS: NONE OBSERVED.

QUALITY CONTROL SECTION

(1) SURROGATE STANDARD RECOVERIES		CONTROL LIMITS (% RECOVERY)
PHENOL-d6	76	10-94%
2,4,6-TRIBROMOPHENOL	99	10-123%
2-FLUOROPHENOL	36	21-100%

(2) EXTRACTION INFORMATION

FRACTION	ANALYST	EXTRACTION TECHNICIANS	EXTRACTION DATE	ANALYSIS DATE
ACID EXTRACTABLES	CJM	JH	03-10-93	03-23-93

EXTRACTION INFORMATION

SAMPLE VOLUME EXTRACTED: 500 mLs
 SURROGATE LOT: 294826 @ 200 ug/mL
 ANALYSIS FILE: 465725 INSTRUMENT: MD-802

US EPA ARCHIVE DOCUMENT

Appendix B – Soil Analytical Results Continued

02/25/94 12:02 Z 61 50 R & R 111 F.00

ZANDE ENVIRONMENTAL SERVICE, INC.
 1233 DUBLIN RD.
 COLUMBUS, OHIO 43215
 (614) 486-4383
 FAX (614) 486-4387
 OHIO EPA APPROVAL # 1030

PAGE : 1

R&R INTERNATIONAL, INC.
 4920 E. FIFTH AVENUE
 COLUMBUS, OHIO 43219
 ATT'N: MS. BRENDA ABKE
 PROJECT #: 302084
 SAMPLED BY: S. GUTHRIE
 EPA METHOD #: 8270 (SEMIVOLATILE ORGANICS)
 SAMPLE TYPE: WATER

DATE : 03/24/93
 CUSTOMER # : R&R2
 SAMPLE ID : 21806
 SAMPLE DATE : 03/15/93
 SAMPLE TIME : 11:25
 DATE REC'D : 03/15/93
 SITE LOCATION : HOCKING STATE FOREST
 SITE ID : 3 (302084003)

ACID EXTRACTABLE COMPOUNDS	RESULT	UNITS
ACIDS/PHENOLS		
BENZOIC ACID	<10	ug/L
PHENOL	<10	ug/L
2-CHLOROPHENOL	<10	ug/L
2,4-DICHLOROPHENOL	<10	ug/L
4-CHLORO-3-METHYLPHENOL	<10	ug/L
2,4,5-TRICHLOROPHENOL	<10	ug/L
2,4,6-TRICHLOROPHENOL	<10	ug/L
PENTACHLOROPHENOL	<10	ug/L
2-METHYLPHENOL	<10	ug/L
4-METHYLPHENOL	<10	ug/L
2,4-DIMETHYLPHENOL	<10	ug/L
2-NITROPHENOL	<10	ug/L
4-NITROPHENOL	<10	ug/L
2,4-DINITROPHENOL	<10	ug/L
4,6-DINITRO-2-METHYLPHENOL	<10	ug/L

NON-TARGET-LIST (TENTATIVELY IDENTIFIED) COMPOUNDS: NONE (OBSERVED).

QUALITY CONTROL SECTION

(1) SURROGATE STANDARD RECOVERIES		CONTROL LIMITS (% RECOVERY)
PHENOL-d6	63	10-94%
2,4,6-TRIBROMOPHENOL	83	10-123%
2-FLUOROPHENOL	33	21-100%

(2) EXTRACTION INFORMATION

FRACTION	ANALYST	EXTRACTION TECHNICIANS	EXTRACTION DATE	ANALYSIS DATE
ACID EXTRACTABLES	CJM	JH	03-18-93	03-23-93

EXTRACTION INFORMATION

SAMPLE VOLUME EXTRACTED: 500 mL
 SURROGATE LOT: 294826 @ 200 ug/mL
 ANALYSIS FILE: 465726 INSTRUMENT: MD-802

US EPA ARCHIVE DOCUMENT

Appendix B – Soil Analytical Results Continued

ZANDE ENVIRONMENTAL SERVICE, INC.
 1233 DUBLIN RD.
 COLUMBUS, OHIO 43215
 (614) 486-4383
 FAX (614) 486-4387
 OHIO EPA APPROVAL # 1030

PAGE : 1

R&R INTERNATIONAL, INC.
 4920 E. FIFTH AVENUE
 COLUMBUS, OHIO 43219
 ATT'N: MS. BRENDA ABKE
 PROJECT #: 302004
 SAMPLED BY: JH
 EPA METHOD #: 8270 (SEMI-VOLATILE ORGANICS)
 SAMPLE TYPE: WATER

DATE : 03/24/93
 CUSTOMER # : R&R2
 SAMPLE ID :
 SAMPLE DATE : 03/18/93
 SAMPLE TIME : 00:00
 DATE REC'D : 03/18/93
 SITE LOCATION : ZANDE LABS
 SITE ID : METHOD BLANK FOR 21804-21807

ACID EXTRACTABLE COMPOUNDS	RESULT	UNITS
ACIDS/PHENOLS		
BENZOIC ACID	<10	ug/L
PHENOL	<10	ug/L
2-CHLOROPHENOL	<10	ug/L
2,4-DICHLOROPHENOL	<10	ug/L
4-CHLORO-3-METHYLPHENOL	<10	ug/L
2,4,5-TRICHLOROPHENOL	<10	ug/L
2,4,6-TRICHLOROPHENOL	<10	ug/L
PENTACHLOROPHENOL	<10	ug/L
2-METHYLPHENOL	<10	ug/L
4-METHYLPHENOL	<10	ug/L
2,4-DIMETHYLPHENOL	<10	ug/L
2-NITROPHENOL	<10	ug/L
4-NITROPHENOL	<10	ug/L
2,4-DINITROPHENOL	<10	ug/L
4,6-DINITRO-2-METHYLPHENOL	<10	ug/L

NON-TARGET-LIST (TENTATIVELY IDENTIFIED) COMPOUNDS; NONE OBSERVED.

QUALITY CONTROL SECTION

(1) SURROGATE STANDARD RECOVERIES		CONTROL LIMITS (% RECOVERY)
PHENOL-d6	63	10-94%
2,4,6-TRIBROMOPHENOL	79	10-123%
2-FLUOROPHENOL	29	21-100%

(2) EXTRACTION INFORMATION

FRACTION	ANALYST	EXTRACTION TECHNICIANS	EXTRACTION DATE	ANALYSIS DATE
ACID EXTRACTABLES	CJH	JH	03-18-93	03-23-93

EXTRACTION INFORMATION

SAMPLE VOLUME EXTRACTED: 500 mLs
 SURROGATE LOT: 294826 @ 200 ug/mL
 ANALYSIS FILE: 465723 INSTRUMENT: MD-802

US EPA ARCHIVE DOCUMENT

Appendix B – Soil Analytical Results Continued

02/25/94 12:14 614 237 6550 R & R Inc. P.C.

ZARDE ENVIRONMENTAL SERVICE, INC.
 1233 DUBLIN RD.
 COLUMBUS, OHIO 43215
 (614) 486-4383
 FAX (614) 486-4387
 OHIO EPA APPROVAL # 1030

PAGE : 1

R&R INTERNATIONAL, INC.
 4920 E. FIFTH AVENUE
 COLUMBUS, OHIO 43219
 ATT'N: MS. BRENDA ABKE
 PROJECT #: 302004
 SAMPLED BY: JH
 EPA METHOD #: 8270 (SEMIVOLATILE ORGANICS)
 SAMPLE TYPE: WATER

DATE : 03/24/93
 CUSTOMER # : R&R2
 SAMPLE ID : 21007
 SAMPLE DATE : 03/12/93
 SAMPLE TIME : 00:00
 DATE REC'D : 03/15/93
 SITE LOCATION : ROCKING STATE FOREST
 SITE ID : TRIP BLANK

ACID EXTRACTABLE COMPOUNDS	RESULT	UNITS
ACIDS/PHENOLS		
BENZOIC ACID	<10	ug/L
PHENOL	<10	ug/L
2-CHLOROPHENOL	<10	ug/L
2,4-DICHLOROPHENOL	<10	ug/L
4-CHLORO-3-METHYLPHENOL	<10	ug/L
2,4,5-TRICHLOROPHENOL	<10	ug/L
2,4,6-TRICHLOROPHENOL	<10	ug/L
PENTACHLOROPHENOL	<10	ug/L
2-METHYLPHENOL	<10	ug/L
4-METHYLPHENOL	<10	ug/L
2,4-DIMETHYLPHENOL	<10	ug/L
2-NITROPHENOL	<10	ug/L
4-NITROPHENOL	<10	ug/L
2,4-DINITROPHENOL	<10	ug/L
4,6-DINITRO-2-METHYLPHENOL	<10	ug/L

NON-TARGET-LIST (TENTATIVELY IDENTIFIED) COMPOUNDS: NONE OBSERVED.

QUALITY CONTROL SECTION

(1) SURROGATE STANDARD RECOVERIES CONTROL LIMITS (% RECOVERY)

PHENOL-d6	75	10-94%
2,4,6-TRIBROMOPHENOL	93	10-123%
2-FLUOROPHENOL	34	21-100%

(2) EXTRACTION INFORMATION

FRACTION	ANALYST	EXTRACTION TECHNICIANS	EXTRACTION DATE	ANALYSIS DATE
ACID EXTRACTABLES	CJM	JH	03-18-93	03-23-93
RE-EXTRACTION	CJM	JH	03-23-93	03-30-93

EXTRACTION INFORMATION

SAMPLE VOLUME EXTRACTED: 500 mLs
 SURROGATE LOT: 294826 @ 200 ug/mL
 ANALYSIS FILE: 465727/465817 INSTRUMENT: MD-802

US EPA ARCHIVE DOCUMENT

Concurrences

Name	Title	Signature	Date
Brian P. Freeman	Project Manager	/Brian P. Freeman/	8/4/14
Richard Clarizio	Regional Counsel		
Donald Heller	Supervisor (Acting)	/signed/ by Don Heller	8/8/2014
Jose Cisneros	Branch Chief		